FSM BY PRIVATE ENTREPRENEURS FOR SUSTAINABLE BUSINESS MODEL

-A case study

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INTRODUCTION

Facts

- 97% of the unplanned & densely populated sub-wards use onsite sanitation technologies (Jenkins M.W, et al. 2014)

- In such situations, sanitation facilities are likely to be emptied (Thye et al. 2011)
INTRODUCTION Cont...

In this situation the questions to ask ourselves are:-

- Who should do emptying services as a ‘business’?.
- What devices/tools should be used?.
- How to get access to these sanitation facilities?.
- How to transport emptied sludge to treatment plant?
OBJECTIVES

- Identification of barriers that hinder service provider to grow into FSM business.

- Ways of maximizing profit by overcoming barriers related to FSM Business.

- Identification of key areas to be considered in FSM business.

“UMAWA” as Service Provider for FSM
RESEARCH APPROACH USED

- Working with Service provider ’UMAWA’
  - Questioners for service provider and
  - Community who are getting emptying services.

- Field testing of manufactured pit empting devices.
INITIAL BUSINESS ENTERVATION

1. Transfer station-2010

- 2,000 HH’s was Served
- Profit was generated in low amount
- 5 workers was employed

Treatment P. 4

3

1

2

FSM4
1. Transfer station Cont.......
2nd Intervention: - Construction of Fecal Sludge Treatment Plant [FSTP]

- Capacity of 4 m$^3$/day
- Area coverage = 500 m$^2$
- Transportation cost are saved
- Biogas for cooking is produced, 2-4 m$^3$/day
- Fish ponds
- Using treated effluent for irrigation
- Sludge for agriculture uses
2nd Intervention
### 3rd Intervention: Manufacturing of Pit emptying & Collection device

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<tr>
<th>SN</th>
<th>Description</th>
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| 1  | SludgeGo Components          | 1. Vacuum tanker mounted into trailer  
2. Tractor                                                                                                                                  |
| 2  | Power by                     | 1. Vacuum pump engine, 9.75kw with 13HP  
2. Tractor engine 20HP output,                                                                                                              |
| 3  | Size                         | - 3.9m x 1.4m x 2.1m [Approx.]                                                                                                             |
| 4  | Weight                       | - 1200 kg including sludge contents                                                                                                         |
| 5  | Pumping rate                 | - 160 l/min                                                                                                                                  |
| 6  | Tank capacity                | - 1m³                                                                                                                                       |
| 7  | Application                  | 1. For all watery, medium and heavy sludge  
2. For settlement area with limited access [street roads width 2-3m]                                                                            |
| 8  | Discharge hose               | - Flexible pipe Ø 3" x 20m.                                                                                                                  |
| 9  | Operating depth and distance from the pit | - Up to 4 m head and 50-100m distance to the pit                                                                                     |
| 10 | Type of fuel                 | - Diesel                                                                                                                                   |
| 11 | People required for operations | - 2 minimum                                                                                                                                  |
3\textsuperscript{rd} Intervention

SludgeGo
4th Intervention: Establishment of BORDA-UMAWA Training center

- It can accommodate Max. of 30 people
- Area coverage ~ 84 m²
Achievements of All interventions

- 20 Workers are employed now
- Over 8,000 HH are getting service
- Community are happy with the service provided
- UMAWA has good reputation with local Government
- UMAWA has access to Loan from Banks
LESSONS LEARNED

- Professional service providers are one of the key personnel in sanitation chain. So there is a need to be supported to go into this business

- Proper emptying and collection Multi-devices are required

- Marketing approach of sanitation business to the Communities

- Sensitization & law enforcement [Social acceptability]

- Initial Capital is an issue for new service provider

- Faecal sludge management business setup is required
WAY FORWARD

- UMAWA to expand business coverage area, and construction of another Faecal sludge treatment plant.

- Further Research on pit emptying devices by considering:
  - Affordability
  - Easily maintained
  - Emptying and collection efficiency

- Research on by-products from Faecal Sludge Treatment Plant i.e. Sludge, Biogas and effluent.

- Community and Local government awareness via Training centre.

- Develop training centre programs and cost for the trainings together with UMAWA.
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